

**HUMAN PAPILLOMAVIRUS IN THE UNITED STATES:
WHAT MALES NEED TO KNOW?**

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Abstract

Sex. Most individuals have had or will have sexual intercourse or sexual activity at some point in their lives. When individuals have sexual activity, regardless of their age, gender, race, ethnicity, marital status or sexual orientation, there is a level of risk with contracting a sexually transmitted infection (STI). STIs are common among the United States population, as more than half of all people in the United States will have an STI at some point in their lifetime (Koutsky, 1997). One of the most common of these STIs is caused by human papillomavirus (HPV). Of the more than 100 types of HPV that can affect various parts of the body, 30 are regarded as transmitted primarily through sexual activity. As stated by many organizations including the American Social Health Association (ASHA), genital HPV is common. It is contracted by approximately 80% of sexually active women and men at some point during their lifetime (Koutsky, 1997). Further, more than half of all STI cases were among adolescents and young adults between the ages of 15 and 24 during the year 2000, with 88% of those new STI cases resulting from HPV, trichomoniasis and Chlamydia (Weinstock, 2004). Specific to HPV overall, there are approximately 6.2 million new cases each year in the United States (Steinbrook, 2006).

Genital HPV is most often a minor, asymptomatic condition that is typically held under control by an individual's immune system. Still, according to many sources including the International Agency for Research on Cancer (IARC), certain HPV types can serve as co-factors for cancers of the cervix, vagina, vulva, and anus in women, and of the penis and anus in men (IARC, 1995). Of these conditions, cervical cancer is the most common and is more commonly associated with high risk types of HPV (CDC,

2009). HPV information and awareness efforts are often targeted more toward the female population as cervical cancer can only occur in females. Additionally, HPV tends to only cause benign symptoms in men such as genital warts or bumps, whereas it can cause cervical cancer precursors (cervical dysplasia) in women. Although it is important for women to become educated about HPV, males are also in need of information on the virus. The intent of this paper is to identify the prevalence, characteristics, and issues surrounding HPV and discuss how topics such as awareness, symptoms, testing, treatment, risk reduction, vaccines, and psychosocial issues surrounding the virus, should be communicated to the male population.

Table of Contents

Abstract.....	2
List of Abbreviations.....	5
List of Figures.....	6
Genital HPV: The Problem.....	7
Genital HPV: Characteristics and Issues.....	10
Who gets HPV?.....	10
Transmission.....	11
Signs and symptoms.....	12
Risk and risk reduction.....	14
Testing.....	14
Treatment options.....	15
Psychosocial issues.....	16
Vaccines.....	17
Cancer.....	18
Genital HPV: How to Get Information to Men.....	22
Web-based initiatives.....	23
Schools.....	24
Healthcare providers.....	25
Conclusion.....	25
References.....	27

List of Abbreviations

ACIP	Advisory Committee on Immunization Practices
AGI	Alan Guttmacher Institute
AIDS	Acquired Immune Deficiency Syndrome
AMA	American Medical Association
ASHA	American Social Health Association
CDC	Centers for Disease Control and Prevention
DHHS	Department of Health and Human Services
DNA	Deoxyribonucleic acid
FDA	United States Food and Drug Administration
HIV	Human Immunodeficiency Virus
HPV	Human Papillomavirus
IARC	International Agency for Research on Cancer
MSM	Men who have sex with men
NCI	National Cancer Institute
NIH	National Institutes of Health
SEER	Surveillance, Epidemiology, and End Results
STI	Sexually Transmitted Infection
TCA	Trichloroacetic acid
WHO	World Health Organization

List of Figures

Figure A: Cervical cancer incidence in United States.....	9
Figure B: Female genital region.....	13
Figure C: Male genital region.....	13
Figure D: Yearly counts of HPV-associated cancers in the US.....	20
Figure E: HPV-associated anal cancer rates by race and ethnicity, US.....	21
Figure F: HPV-associated penile cancer rates by race and ethnicity, US.....	21

Genital HPV: The Problem

The World Health Organization (WHO) *defines health as*, “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (Turnock, 2007). Individuals can be in good health and still have viruses such as HPV. As human beings, we are exposed to viruses each and every day, and, as our bodies are perfect “hosts” for viruses, we often contract them with or without knowledge. HPV is an example of a virus that can cause infection, but not disease. More simply put, it is a virus that individuals can unknowingly have for many years. An estimated 5.5 million individuals contract HPV each year in the United States, and an estimated 20 million individuals currently have the virus (Cates, 1999). “Currently” is the key phrase here, as many individuals’ immune systems are able to clear the virus to undetectable levels. A study conducted by Ho and reported in 1998, showed that in 91% of women with new HPV infections, HPV became undetectable within just two years (Ho, 1998). However, reactivation at any point for females or males is a possibility. A key element about HPV is that it is actually a family of viruses with different geno types that affect different areas of the body. These different viral types fall into classifications of *low risk* and *high risk*, and can affect males and females symptomatically and asymptotically in separate ways. While this paper will go into more detail with cervical cancer, genital HPV can also serve as a cofactor to other cancers as documented by Parkin. HPV is estimated to be responsible for approximately 90% of anal cancers and about 40% of vulvar, vaginal, and penile cancers (Parkin, 2006).

Genital warts are referred to as low risk types and rarely cause complications of any kind. These low risk types can be found in either gender and can appear not only

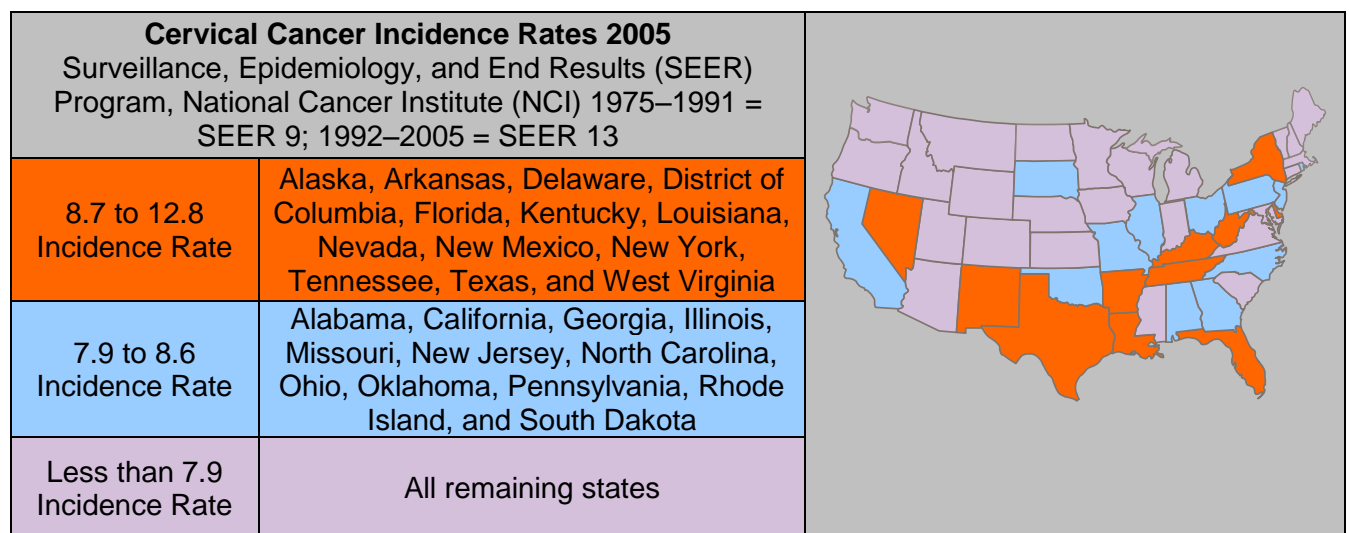
as warts but also as simple growths or bumps, raised or flat, single or multiple, that cause little to no pain or discomfort. These symptoms can appear anywhere in the genital region below the waist and above the thighs including the penis, scrotum, vagina, vulva, anus, groin and buttocks. These symptoms may never appear or show for weeks, months or years after contracting the virus. They may disappear on their own, and may be a single occurrence or potentially recur again. Hence, it is virtually impossible for one to know when and from whom they contracted the virus.

There are also high risk types that do not affect men but affect women by causing cell changes to the cervix, referred to as cervical dysplasia. These abnormal cell changes can be found by healthcare providers via a Pap test (sometimes referred to as Pap smear) where a sample of cells is taken from the woman's cervix. This is a standard test for detecting precancerous cells or tumors. Although not a guarantee, these high risk types can contribute to the development of cervical cancer. HPV is the cause of almost all cervical cancer (Walboomers, 1999). Cervical cancer is not rare and is the 11th most common cancer among women in the United States (Steinbrook, 2006). As of 2006, approximately 9,710 cases were documented and approximately 3,700 women died (Steinbrook, 2006). Per the Centers for Disease Control and Prevention, an estimated 10,800 cases of cervical cancer occur each year in the United States (CDC, 2009). In terms of race and ethnicity, more African American and Hispanic women develop cervical cancer and are diagnosed at later stages than women of other races and ethnicities. Approximately 14 Hispanic women, 8 white women, 13 African American women, and 8 Asian/Pacific Islander women were diagnosed with cervical cancer per 100,000 women between 1998 and 2003 (Watson, 2008). The median age

of diagnosis for cervical cancer was 47 years (Watson, 2008). Additionally as reported by Benard, roughly 10 out of every 100,000 women who live in poorer counties (defined as counties where more than 10% of residents have an income below the federal poverty level) are diagnosed with cervical cancer each year. The rate climbs to 13 women per 100,000 in counties in which less than 20% of residents are below poverty level, and peaks at about 19 per women 100,000 in poorer counties (Benard, 2008).

As of 2005, roughly 25 states had cervical cancer rates between 7.9 and 12.8 per 1,000 individuals according to the National Cancer Institute or NCI (NCI, 2005). There were 12 states and the District of Columbia with incidence rates between 8.7 and 12.8 as displayed in Figure A from the National Cancer Institute. Additionally, there were 12 states with rates between 7.9 and 8.6 as indicated by the incidence rates in Figure A from NCI. All other states, shown in Figure A in purple, had rates below 7.9. These overall rates should be considered too high in light of the United States having one of the highest amounts of yearly spending on healthcare (WHO, 2008).

Figure A: Cervical Cancer Incidence in United States



Genital HPV: Characteristics and Issues

HPV infections are common among men of all ages (Giuliano, 2008). Males who are sexually active or will be at some point in their lives need to be empowered with information on HPV. For their own benefit as well as the benefit of their partner, gaining knowledge of HPV and its potential effects on the body is worthwhile for men. Strategies for increasing men's access to accurate, non-alarmist information is warranted and programs offering such information should be implemented nationally. Programs, outreach efforts, and initiatives with the goal of educating the public on HPV should consider the importance of offering gender-specific information as part of a comprehensive approach. Based on my 11 years of experience at addressing sexually transmitted infections, I will discuss the HPV topics below:

- Who gets HPV?
- Transmission
- Signs and symptoms
- Risk and risk reduction
- Testing
- Treatment options
- Psychosocial Issues
- Vaccines
- Cancer

Who gets HPV?

Just as any female who has had sexual activity could contract HPV, any male who has been sexually active could contract the virus as well. It is not a matter of being

good or bad, clean or dirty, or deserving of contracting it; the simple fact is sexual activity engenders a risk for contracting the virus. The CDC estimates that most sexually active people in the United States will contract HPV at some point during their lifetime (CDC, 2009). Most experts agree that the majority of sexually active people will be exposed to the virus at some point in their lives and potentially contract it unknowingly. Individuals with HPV span across all demographics and it is estimated that approximately 80% of sexually active women and men contract HPV at some point during their lifetime (Koutsky, 1997). One challenge is that most individuals simply do not know they have the virus and can pass it to a partner unknowingly, which takes us to the next topic of transmission.

Transmission

Genital HPV can be spread by direct, skin-to-skin contact during vaginal or anal sex, as well as genital-to-genital contact. It is important to note that an individual may not have intercourse, but still contract the virus through intimate genital contact where one person's skin touches another person's skin. Oral sex, where an individual's mouth touches the genital region of another person, has been correlated with HPV in the mouth and oropharyngeal cancer (D'Souza, 2007). However, little is confirmed about oral HPV infection (Syrjänen, 2007). Still, while oral sex is less well understood as a risk for HPV, the practice is increasingly linked to HPV infections. (D'Souza 2009). Also important is that the facts above apply to heterosexual couples as well as homosexual couples, "straight" or same-sex partners. Finally, the virus can be passed even when no symptoms are present or visible. Several sources have indicated that transmission

is a common topic of concern among those with questions about HPV. An observational study was conducted to collect and analyze survey data from participants who contacted an HPV hotline and email service. The findings indicated that transmission was one of the concerns most often expressed about HPV (Herndon, 2006).

Signs and symptoms

It is important to note that many people with genital HPV are asymptomatic – meaning they have no symptoms of the virus. True too is that symptoms can often appear but be unrecognizable and thus a person may not realize they have the virus. As mentioned previously, there are different types of HPV with some causing genital warts and other causing cervical dysplasia. Cervical cancer rarely has detectable symptoms, unless it is quite advanced (American Cancer Society, 2009). Thus, information disseminated on the topic symptoms typically centers on genital warts only. For both women and men, symptoms of genital warts can appear anywhere below the waistline and above the upper thigh area (see Figure B and Figure C below from A.D.A.M. Images – one of the world's largest libraries of medical illustrations with nearly 30,000 detailed and medically accurate images (A.D.A.M., 2010). Contrary to what some individuals believe, the areas for symptoms include not just the penis and vagina, but also the anus, buttocks, scrotum, upper thighs, and perineum. The bumps or warts can vary from one person to another and may appear as single or multiple painless bumps, be raised or flat, large or small, or shaped like a cauliflower. They also may not

itch or be sensitive. Finally, the symptoms may come and go with or without treatment of any kind and potentially recur if one's immune response is weakened.

Figure B: Female genital region (From A.D.A.M. Images, 2010)

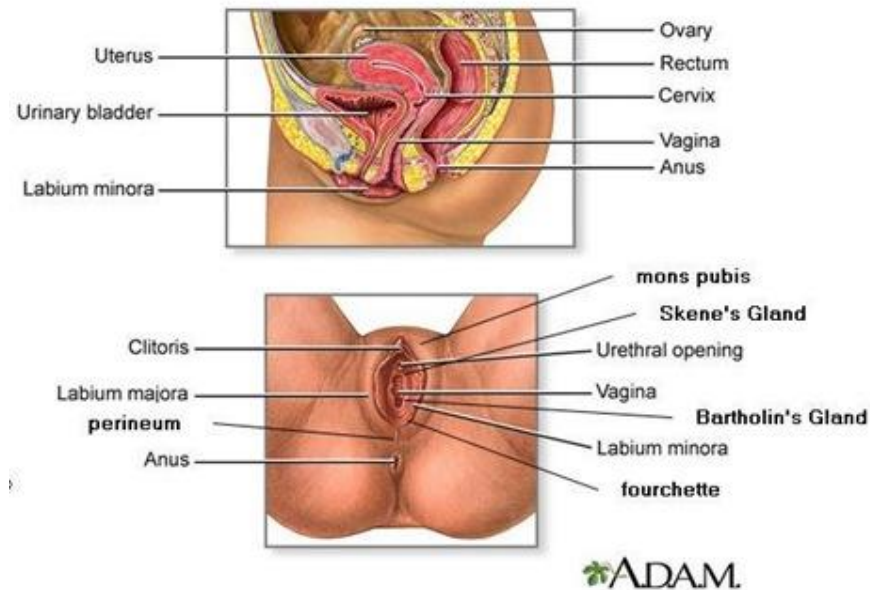
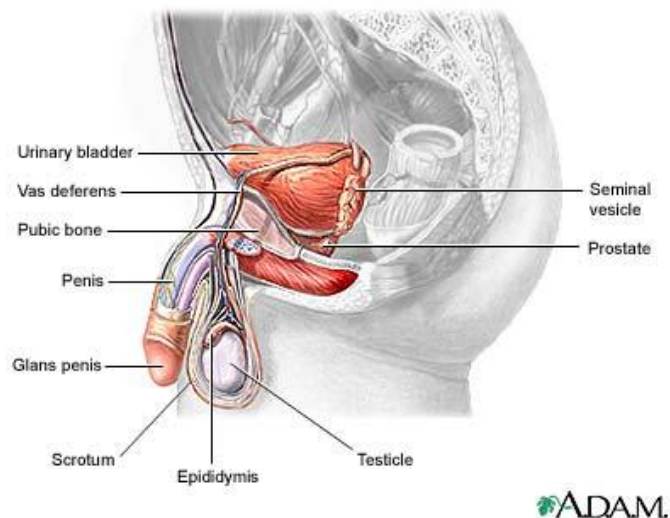


Figure C: Male Genital Region (From A.D.A.M. Images, 2010)



Risk and risk reduction

Knowing the signs and symptoms mentioned above, one risk reduction approach regarding acquisition of genital HPV or any STI is to abstain from sexual activity while symptoms are present. Using latex condoms can reduce the risk of transmission of genital HPV (Winer, 2006). While they do not offer 100% protection, latex condoms do reduce skin-to-skin contact and therefore decrease the potential to pass or contract the virus. Individuals can also lower the risk of contracting HPV by being in a monogamous relationship and/or limiting their number of sexual partners. Additionally, vaccines can now prevent males and females from contracting HPV. Two vaccines are currently available; Cervarix is available for females while Gardasil is available for both males and females (CDC, 2009). Vaccines will be discussed in more detail below, but studies have shown that individuals and parents of minors are receptive to HPV vaccinations (Brewer, 2007). Finally, studies have shown that male circumcision has been found to reduce the likelihood of genital HPV in men (Castellsague, 2002)

Testing

Unfortunately, there is no test approved for clinical use to detect HPV infection in a man. Although a Pap test is used to detect abnormal cell changes in the cervix and there are follow-up screening tests for HPV DNA, these are only used to help screen for cervical cancer in women (CDC, 2009). Still, this should not deter a male from seeking consultation and diagnosis if they notice visible bumps or warts in the genital region. If a male or female has visible bumps or warts in the genital region, a doctor can provide a visual diagnosis; this can be done with the naked eye or a magnifying lens if needed.

Because there can be bumps in the genital region for reasons other than HPV infection (other STIs or skin conditions), it is recommended that a person with symptoms see their doctor for a diagnosis. Regarding the Pap tests used to find abnormal cell changes in women, it is important for females and males to understand the need for screening, since the Pap test is very effective at finding cervical cancer early when it can be highly curable (American Cancer Society, 2009). Screening frequency depends on several factors including age, previous screening history, results of the last Pap test, and the type of screening method being used (American Cancer Society, 2009)

Treatment options

HPV treatment for males and females is currently limited to genital warts. While warts may resolve on their own, there are several treatments available with no single treatment considered a preferred method, as each decision should be on a case-by-case basis. Considerations for the type of treatment to use are based on the size, location, and number of warts or bumps. Also important considerations are the cost implications for the individual, potential side effects, and considerations of past treatment success. Per the CDC Treatment Guidelines, treatments include: imiquimod cream and podofilox cream/gel prescribed for patient application; podophyllin and trichloroacetic acid (TCA) as available by a healthcare provider; cryotherapy, which is the freezing of warts/bumps with liquid nitrogen; electrocautery, which removes warts/bumps with an electric blade; laser therapy which uses an intense light to remove the warts/bumps; and finally surgical removal of the warts/bumps (CDC, 2009). It is imperative that a male research his treatment options and then consult his healthcare

provider with any questions or concerns he may have prior to treatment. Specific to females, the treatment options are the same, with special considerations for pregnancy, vaginal warts or cervical warts.

Psychosocial issues

Often the social or emotional impact of an STI diagnosis can be more difficult to deal with than any physical complications. As I was quoted in an article for *Sex, Etc.*, a magazine geared to younger adults sponsored by Rutgers, The State University of New Jersey, there are many misconceptions and preconceived notions about STIs and many people have inaccurate information (Sex, Etc., 2006). It is common for someone, male or female, to feel upset after a diagnosis. Just hearing that you have been diagnosed with an incurable virus can be daunting and cause even the most self-confident individual to be concerned about his or her future. Yet, it's important for one to realize a few solid facts about the virus in order to truly understand its impact on their current and future health and life as a whole. First, there is no cure for any virus, even the common cold or flu, and that like many viruses, the human body responds to HPV by fighting the virus with its immune response. Secondly, it is important to understand that genital HPV is common simply because sexual activity is common. A key step is to understand that an individual is not a bad person for having HPV. It is not uncommon for a person to feel upset about having the virus or to blame themselves. Certainly, there are factors that increase one's risk of contracting HPV such as multiple sex partners and lack of condom use, but the simple fact remains that any sexual activity brings with it some

level of risk. Thirdly, one must understand the facts surrounding HPV including its different low risk and high risk types and also how both genders are affected.

Returning to a sense of normalcy does not just happen overnight. Upon a diagnosis or hearing that a partner has the virus is the time to obtain updated, accurate information if one is not already educated on the HPV virus. Most people find that they are able to put HPV in perspective whether they, a partner, or both have the virus. Resources such as the CDC, American Social Health Association, American Cancer Society, and National Cancer Institute are just a few examples of reputable, non-alarmist resources where individuals may receive helpful information on HPV and HPV-associated cancers. Succinctly put, HPV is a virus that tends to be a minor problem that can be resolved, if diagnosed early.

Vaccines

Perhaps one of the most important developments in vaccine research and certainly within the cancer arena in recent memory has been the successful creation of a vaccine for HPV. Named Gardasil (pronounced “gard-Ah-sill”); it was approved by the United States Food and Drug Administration (FDA) in 2006 for the prevention of cervical cancer in girls and women between the ages 9 to 26 (Merck & Company, 2006). It was proven effective against the two high risk strains of HPV that can cause cervical cancer – types 16 and 18 (Merck & Company, 2006). The vaccine is also virtually 100% effective in blocking persistent infections and diseases associated with the two low risk HPV types found with 90% of genital warts, HPV 6 and 11. In clinical trials it was found to be most effective in women who had not yet been sexually active; hence, it is recommend to be administered to girls approximately 9 to 18 years of age

with the ideal age range being 11 to 12 since they likely have not yet had sexual activity (Merck & Company, 2006). Women who are between the ages of 19 to 26 can also obtain the vaccine, but it is ideally given prior to a woman having sexual activity. In October 2009, the Gardasil vaccine was approved for use in boys and men between the ages 9 to 26 for the prevention of genital warts. As with females, this vaccine should ideally be administered to males prior to potential exposure to HPV from sexual contact (CDC, 2010).

The guidelines and recommendations above have been advised by various parties including the FDA, CDC, ASHA, and the American Medical Association (AMA). However, these guidelines still vary in terms of implementation from state to state. There are many issues that affect the use of these vaccines, including but not limited to the acceptance of parents, cost implications, political climate, insurance coverage, and concerns over implications of sexual activity. For example, parents can “opt out” of vaccination requirements in some states (ASHA, 2010). Still, data show that parents in the United States have a positive attitude toward HPV vaccination (Brewer, 2007). Additionally, many pediatricians say they would administer the vaccine and support the use of its universal use (Abbigail, 2007). Abbigail adds that specific strategies for vaccine delivery, availability of vaccines in various settings, guidance for addressing possible parental concerns, and specific educational initiatives were important to the successful implementation of the vaccines (Abbigail, 2007).

Cancer

Genital HPV can lead to various cancers as already noted. By far the most common cancer caused by genital HPV in the United States is cervical cancer (CDC,

2009). From the perspective of a male who is in a heterosexual relationship, being educated on HPV and aware of facts specific to females would be helpful – facts such as that Pap tests are a recommended screening tool to find cervical cancer early and that cervical cancer is more likely to occur in women who smoke, have HIV or AIDS, and who have poor nutrition (American Cancer Society, 2009).

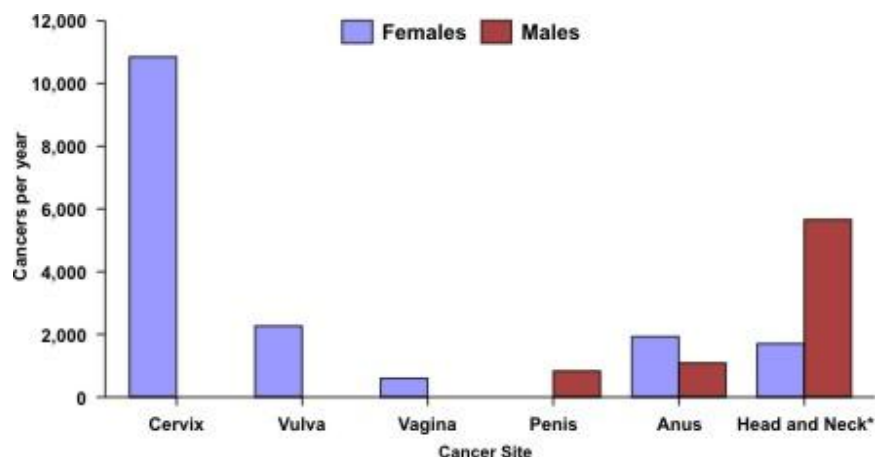
Still, other cancers can result from HPV, and whether male or female, it is important to note the chances of developing cancer from an HPV infection and speak to a healthcare provider about personal risk and recommendations on risk reduction. Specific to penile cancer and anal cancer, both are rare in the United States with about 800 HPV-associated penile cancers and 3,000 HPV-associated anal cancers cases per year, yet it is important to know the symptoms of both (CDC, 2010). For penile cancer, symptoms can include changes in color and thickness of the genital skin, redness, bumps, and sores. Symptoms of anal cancer can include itching, bleeding, pain, and swelling in or near the anus. All of these symptoms described for anal and penile cancer can occur for a variety of other reasons, thus consulting with one's healthcare provider on such symptoms and on a regular basis is a good practice. Basically, any male who notices changes to his genital or anal skin should consult with his provider.

An important point for men who have sex with men (MSM) and/or for men who have or have had receptive anal sex, they may consider speaking with their healthcare provider about having a periodic Pap test in the anus. Similar to a Pap test for a woman's cervix, an anal Pap test involves a healthcare provider taking a swab of the anus in order to collect a sample of cells. The sample is then examined under a microscope to determine if any cell changes are present. While not common practice,

this method could be a considered screening option due to the potential risk of anal cancer.

In terms of the various cancers, approximately 10,800 HPV-associated cervical cancers, 2,300 HPV-associated vulvar cancers, 600 HPV-associated vaginal cancers, 800 HPV-associated penile cancers, 1,900 HPV-associated anal cancers in women and 1,100 in men, and 1,700 HPV-associated head and neck cancers in women and 5,700 in men occur in the United States each year per the CDC (CDC, 2009). Head and neck cancers are not associated with genital HPV. The three bar charts below detail the total number of HPV-associated cancers, anal cancers, and penile cancers from 1998 to 2003 per 1,000 individuals and are provided courtesy of the CDC website. As shown in Figure D, women are more commonly affected with more cases of cervical, vulvar, and vaginal cancer versus men with smaller numbers of HPV-associated cancer cases of the penis and anus. Head and Neck cancers are included on the chart, but are not discussed here due to the discussion being on genital HPV.

Figure D: Yearly counts of HPV-associated cancers in the US, 1998–2003 (CDC, 2009)



These figures from the CDC show how anal and penile cancers are broken down by race and ethnicity within the United States.

Figure E: HPV-associated anal cancer rates by race and ethnicity, US, 1998–2003 (CDC, 2009)

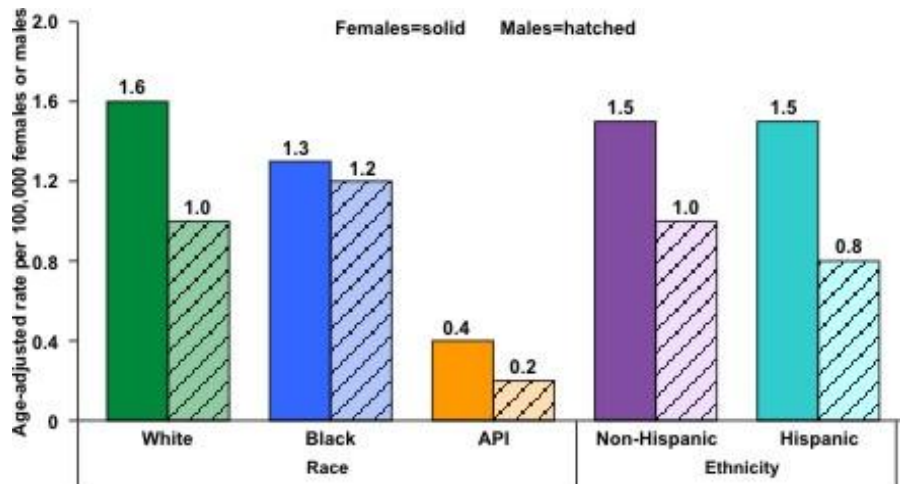
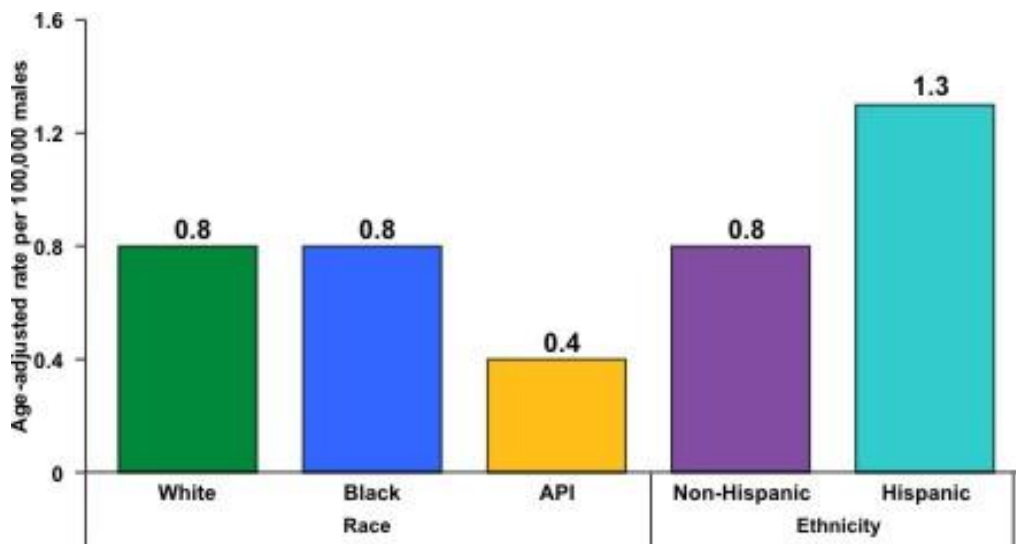


Figure F: HPV-associated penile cancer rates by race and ethnicity, US, 1998–2003 (CDC, 2009)



Genital HPV: How to Get Information to Men

The challenges and concerns that HPV presents to men in the United States have been summarized and an overview of the relevant information has been provided. The challenge is, how does this type of information get into the hands of the individuals who need it? What resources and opportunities are available to ensure that males of varying ages have access to the HPV information they need? What challenges and limitations are there to funding, proper planning, assessment and implementation of such efforts? Is there an interest and an audience, whether professional or public, that would be receptive to such information? These important questions cannot be addressed in this setting alone; however, recommendations on which available communication venues can be used to conduct outreach to males can be introduced. Some good news is that since the initial planning phases of this master's paper, several agencies have created male-specific educational materials geared to and about men. The American Social Health Association and CDC for example, created dedicated web pages tailored to the needs of men at: http://www.ashastd.org/hpv/hpv_learn_men.cfm and <http://www.cdc.gov/std/hpv/stdfact-hpv-and-men.htm>. This is an excellent first step in the right direction to having available HPV information that is of specific interest to males.

Regarding comprehensive information on HPV, the creation of resources and implementation of targeted efforts are key considerations for an effective approach. Here, we will assume funding levels are limited and will not consider more expensive efforts such as multi-media approaches, extensive outreach projects, and the like. We will however briefly review three communication venues that could be used to present

opportunities for increasing HPV education and awareness, and thus making an impact on the HPV situation. These cost effective venues include:

- Web-based initiatives
- Schools
- Healthcare providers

Web-based initiatives

Communication options via the Internet have increased considerably as technological advances have occurred. With the age of the internet and at-your-fingertips information 24-hours-a-day, the appeal of offering information quickly and efficiently has benefited many facets of our country. Education and outreach opportunities are no different. There are many websites geared to public health, men's health, sexually transmitted infections, reproductive health, behavioral sciences, adolescent health, and other topics that HPV could fall under. Resources with the goal of providing health information to males, should consider offering basic information and reliable links to additional HPV resources. The Internet provides options of downloading material, sharing dialogue, asking questions, networking with professionals, and posting materials; the opportunities are endless and also cost-effective. With just a few clicks, detailed information can be posted and accessible to billions of Internet users across the world, and sensitive health questions can be answered in an anonymous, confidential manner. Considering this opportunity, entities can continue or even increase the amount of HPV information and resources they provide to males.

Of special mention is the increased use of social networking sites and advocacy/support group sites. These venues provide cost-effective options for reaching specific populations. It is possible to target varying male demographics by specific topics such as income, educational background, as well as by country or regions within the United States. For example, an existing outreach program in North Carolina can advertise or market to males who reside in North Carolina and are of a specific age range by utilizing networks such as Facebook™ or MySpace™.

Schools

Parents often find it difficult to discuss sex with their children and many may be lacking in knowledge of topics including HPV and condom efficacy. This is important considering that sex is common in the teenage years (Guttmacher Institute, 2002). Even more importantly for adolescent males, studies suggest that young males have sexual activity earlier and a higher number of partners than females; both are factors associated with a higher risk of contracting an STI (Marcel, 2003). Educational materials, resources, and referrals need to be made available to school-aged children as part of a comprehensive sexual education program. Exactly at what age to implement such programs will vary depending on various factors including acceptance, political climate, parental concern, and funding. The average age of first sexual intercourse for males and females is between 16 to 17 years of age (Kaiser, 2005). Thus, it is the recommendation of this author to begin comprehensive STI education, which includes basic HPV awareness, between the ages of 13 and 14. This also coincides with the age recommendations for the cervical cancer vaccines.

Healthcare providers

Taking ownership with regard to providing both care and information on HPV should be a high priority for healthcare professionals who deal with this indication. Healthcare providers of men especially present an opportune venue for materials such as brochures, flyers, posters, and tools for HPV education. Specialties and settings where males may frequent can include but not be limited to urologists, dermatologists, community clinics, proctologists, and health departments. The FDA should continue to play a key role in not only setting standards for testing and treatment, but also in providing resources and information to healthcare professionals who in turn can then disseminate information to their patients. As Hamburg and Sharfstein point out in an article on the FDA, “Collaboration with sister public health agencies in the DHHS (Department of Health and Human Services), industry, consumer and patient organizations, and the public will lead to exciting opportunities for progress in public health.”

Conclusion


With the high prevalence of HPV, estimated millions of new cases each year, and the identified health implications that affect women and men such as cervical or penile cancer, the time for males to get updated, tailored information is now. As more research findings provide additional important HPV information and more communication venues are more easily accessible, opportunities exist for awareness at various age levels and to different male audiences. Information on topics including HPV awareness, symptoms, testing, treatment, risk reduction, vaccines, and psychosocial

issues, is available and should be sought by and offered to sexually active males.

Information dissemination via web-based efforts, schools and health care professionals can play a key role in the successful implementation of HPV awareness campaigns and prevention efforts. Vaccination programs are of special importance considering the proven efficacy of the current HPV vaccines and their availability to both females and males. Coupled with risk reduction measures, it is clear the call to action for the male population in the United States is here. Ultimately, any perceived barriers, limitations and challenges should be viewed as potential opportunities for education, awareness and prevention to all sexually active males.

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